was 3.7% (95%CI, 2.6%, 5.3%). Because of the low number of knee arthroplasty procedures, the predictor analysis was preliminary in nature. The analysis identified several variables that could be used to assist in identifying patients at future risk for knee arthroplasty. Table 1 summarizes the ratings of importance from the Random Forest Analysis while Figure 1 illustrates variable importance graphically. The most powerful predictors of future knee arthroplasty were those that accounted for disease severity (OARSI Atlas grade of 3) and functional loss (SF-12 Physical Component Score and Mental Component Score, 400 meter walk time, and WOMAC Function score).

Values for the two importance indexes used in the Random Forest analysis

	Mean decrease in accuracy	Mean decrease in Node Impurity
Demographic		
V00AGE - Age (in years)	0.016	1.743
Highschoolorless - High school diploma or less (yes or no)	0.002	0.553
General Health		
V00CESD - CESD depression score (continuous measure)	0.003	1.319
BMIgr30 - BMI greater than 30 (yes or no)	0.002	0.511
Arthritis Health		
V00KGLRS - 0 to 10 global rating of effect of knee pain/arthritis	0.005	1.143
grade4klforprogressioncohort - Grade 4 modified Kellgren-Lawrence (yes or no)	0.06	2.215
Physical Examination		
Newcontractureprog - Knee flexion contracture (degrees)	0.013	1.850
Physical Performance or Disability		
V00400MTIM - Time for 400 meter walk test (sec)	0.014	1.981
V0 HSPSS - SF-12 Physical Component Summary score (continuous)	0.019	2.300

Conclusions: For persons at risk of knee arthroplasty, the two year incidence of knee arthroplasty is very low. Reasons for the low incidence cannot be determined from this study. These data could assist physicians in advising patients with knee osteoarthritis on future surgical care.

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012

RISK FOR SYMPTOMATIC KNEE OSTEOARTHRITIS DOES NOT VARY BY KNEE EXTENSOR STRENGTH AND KNEE JOINT POSITION SENSE

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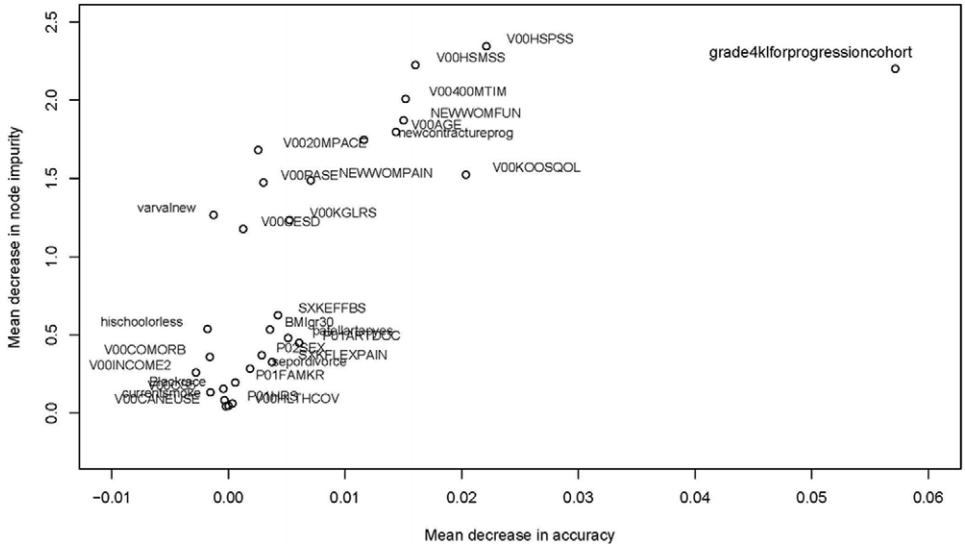
Purpose: Quadriceps weakness and impaired knee joint position sense (proprioception) have been linked cross-sectionally with knee OA. While neither of these factors has been independently associated with new onset disease, it is possible that one substitutes for the other and that only when both are impaired is the joint at risk. This study investigated whether sensoriomotor dysfunction - the combination of quadriceps weakness and impaired knee joint position sense - precedes development of symptomatic knee OA.

Methods: The Multicenter Knee Osteoarthritis (MOST) Study is a longitudinal, observational study of adults age 50-79 years with knee OA or at high risk for knee OA. MOST subjects were excluded if they had symptomatic knee OA at baseline. Those with missing data or knee pain that interfered with strength testing were also excluded. Subjects underwent bilateral, weight bearing, fixed-flexion radiographs, right knee joint reposition tests, and isokinetic knee extensor strength assessments; completed the Physical Activity Scale for the Elderly (PASE) and WOMAC questionnaires; and had height, and weight measurements taken. Symptomatic knee OA was defined as the combination of knee OA (KL grade $\geq$2) and frequent knee pain or stiffness at follow-up. The relationship between combinations of the tertiles of sex-specific baseline peak KES and tertiles of JPS and development of incident symptomatic knee OA at 30-month follow-up was evaluated with logistic regression adjusted for age, BMI, knee injury, knee surgery, and PASE score. Secondary analyses defined joint position sense as (1) the subject-specific variance over the 10 trials and (2) the average joint position sense over the 10 trials, and also assessed the interaction of knee extensor strength and joint position sense in predicting the outcome using generalized linear models.

Results: 1565 subjects (911 women and 654 men) met eligibility criteria and were included in this study. The mean$\pm$SD age was 62.1$\pm$8.0 years, BMI was 29.8$\pm$5.4kg/m^2, PASE score was 182.9$\pm$88.7, and WOMAC pain subscale was 2.2$\pm$2.8. There



Abstract 011 – Figure 1

was no association between the combinations of knee extensor strength and joint position sense and incident symptomatic knee OA at 30-month follow-up. Secondary analyses, also did not demonstrate a statistically significant relationship between the interaction of knee extensor strength and either the average joint position sense or the variance in joint position sense and the development of incident symptomatic knee OA (all p>.25).

Relationship Between Tertiles of Strength-Proprioception and Incident Symptomatic Knee OA

KES + JPS Tertile	# Cases (%)	OR (95% CI)†
Low-Low	25 (14.5)	2.01 (0.91, 4.43)
Low-Medium	21 (12.7)	1.84 (0.82, 4.13)
Low-High	26 (14.1)	2.06 (0.93, 4.56)
Medium-Low	11 (6.5)	0.90 (0.36, 2.23)
Medium-Medium	11 (6.2)	0.95 (0.39, 2.31)
Medium-High	19 (10.9)	1.49 (0.65, 3.38)
High-Low	12 (6.7)	0.95 (0.39, 2.31)
High-Medium	13 (7.3)	0.95 (0.39, 2.31)
High-High	10 (6.1)	1.00 (referent)

†Adjusted for age, BMI, knee injury, knee surgery, and PASE

Conclusions: Results of this study do not provide conclusive evidence for sensorimotor dysfunction, either categorical combinations or continuous interaction of impaired knee strength and joint position sense, altering risk for development of incident symptomatic knee OA.

013

IMPAIRMENT OF FUNCTION IS THE MAJOR DETERMINANT OF REDUCED HEALTH-RELATED QUALITY OF LIFE IN HAND OSTEOARTHRITIS PATIENTS IN SECONDARY CARE

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Purpose: Osteoarthritis (OA) is a heterogeneous disease. OA subtypes, pain, functional impairment and quality of life (QoL) and its determinants in OA patients consulting a rheumatology outpatient clinic were investigated, to gain more insight in the clinical impact of OA in secondary care.
Methods: Patients diagnosed by the rheumatologist as primary hand, knee or hip OA, and referred to the clinical nurse specialist, were consecutively included in this cross-sectional study from August 2005 until April 2009. Collection of demographic characteristics and OA complaints was done by standardized questionnaires. Middle-aged controls from the Leiden region were collected by Random Digit Dialing (n=345) and were used for comparison of demographic characteristics.
QoL was assessed by Short Form 36 (SF-36, range 0 to 100, low score represent worse health status). Norm based summary scores of the SF-36 (physical component summary score (PCS) and mental component summary score (MCS)) were calculated from a Dutch reference population. A score of 50 should be interpreted as the average score of the normal population.
Pain and function in hand OA patients were assessed by the Australian Canadian Osteoarthritis Hand Index (AUSCAN pain score, range 0 to 20, AUSCAN function score, range 0 to 36). All clinical diagnoses were verified by the medical chart. Logistic regression analyses were used for comparison of demographic characteristics between OA patients and controls. Linear regression analyses were performed for continuous outcomes (PCS, MCS, AUSCAN scores) in OA patients. Results were presented as odds ratios (OR) and beta-estimates with a 95% confidence interval.
Results: Four-hundred sixty patients were included, of which 89% was female with an average age of 61 years (SD 9.9), 60% was overweight (BMI>25 kg/m^2), 38% was low educated, 32% had paid employment and 17% was a current smoker.
More patients in the OA population were overweight (OR 1.6, CI 95% 1.2-2.3), married (OR 1.8 CI 95% 1.3-2.6) and had paid employment (OR 2.2, CI 95% 1.5-3.2) than the controls, after adjustment for age and sex and independently of each other.
Monoarticular joint site involvement (mono OA) was seen in 244 patients, of which 94% was hand involvement. Two-hundred sixteen patients had OA in one or more joint sites (poly OA), of which 97% had hand OA, 43% had knee OA and 11% had hip OA. OA patients scored a mean of 43 (SD 8.6) in the PCS score and 51 (SD 10.1) in the MCS score of the SF-36. The PCS score was positively associated with married status and negatively with overweight. The MCS score was positively associated with married status and negatively with low education and smoking. Mono OA patients reported a better PCS (beta 2.5, CI 95% 0.7-4.3) than the poly OA group.
Patients with hand OA (n=439) reported a mean score of 9.5 (SD 4.3) on the AUSCAN pain subscale and 16.5 (SD 8.6) on the AUSCAN function subscale. AUSCAN function subscale was associated with PCS (beta -0.3, CI 95% -0.4,-0.2), after adjustment for all potential confounders. No association was found between the AUSCAN pain and PCS, nor between AUSCAN pain and function subscales and MCS.
Conclusions: Nearly all OA patients visiting a rheumatology outpatient clinic are diagnosed with hand OA, with or without involvement of other joint sites. The majority is middle-aged, female and overweight; they are two times more likely to have paid employment than the controls. Health related QoL is decreased for all OA patients and is associated with OA in 2 or more joint sites. Health related QoL is associated with impaired hand function, but not with hand pain.

014

THE ASSOCIATIONS BETWEEN LEPTIN, INTERLEUKIN 6 AND HIP RADIOGRAPHIC OSTEOARTHRITIS IN OLDER PEOPLE

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Purpose: To determine the associations between serum levels of leptin, interleukin 6 (IL-6) and hip radiographic osteoarthritis (OA) in older adults.
Methods: A cross-sectional sample of 193 randomly selected subjects (mean 63 years, range 51-78, 47% female) were studied. Serum leptin and interleukin 6 (IL-6) were assessed by radioimmunoassay. Right and left hip joint space narrowing (JSN) and osteophytes were assessed using Altman's atlas. The data was analysed using ordinal logistic regression, clustered over subjects to allow for the correlated hip measures within subjects.
Results: Serum leptin levels were significantly associated with superior (leptin levels in grade 0, 1, 2 and 3: 10.8, 16.7, 20.4 and 32.7 μgl/L, respectively, P<0.001) and axial (leptin levels in grade 0, 1, 2 and 3: 11.1, 17.5, 23.4 and 21.0 μgl/L, respectively, P<0.001) JSN. Serum IL-6 levels were also significantly associated with superior (IL-6 levels in grade 0, 1, 2 and 3: 3.6, 4.8, 14.3 and 7.9 pg/ml, respectively, P<0.05) and axial (IL-6 levels in grade 0, 1, 2 and 3: 3.6, 3.9, 9.9 and 30.24 pg/ml, respectively, P<0.001) JSN. In multivariable analysis, both serum leptin and IL-6 levels remained significantly associated with superior (β= +0.05/unit, P<0.05 and = +0.02/unit, P<0.001, respectively) and axial (β = +0.07, P<0.01 and = +0.04, P<0.001, respectively) JSN. Serum leptin and IL-6 levels were not associated with osteophytes.
Conclusions: Serum levels of leptin and IL-6 are positively associated with hip JSN (an indirect measure of cartilage), but not osteophytes in older people suggesting metabolic and inflamma-